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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,333	11/20/2001	David S. Siedal	TA-00531	9954

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James E. Bradley
BRACEWELL & PATTERSON, LLP
Suite 2900
711 Louisiana Street
Houston, TX 77002-2781

EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/989,333

Applicant(s)

SIEDAL, DAVID S.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period of Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 18-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-21 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-17) in Paper No. 4 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 9, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Harter (US 2,299,747).

Harter discloses a method of forming metal structures of one or more layers of fusion deposited weld metals of desired thicknesses and/or different metals in more than one of the superimposed layers, in which the method includes the steps of suspending, pressing, and rolling a plurality of rollers 18' upon the surfaces of deposited metal, in which metal is deposited by controlled heating of adjacent metal weld rods A,B (metal wire located in a position prior to the rollers 18' in the operation) in the presence of an inert, non-oxidizing gas, prior to the molten/plasticized metal deposit being shaped (while cooling) by rollers 18' (column 1, lines 15-31; column 2, lines 2-26 and 35-37;

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column 3, lines 36-75; column 4, lines 1-6, 24-37, and 52-58; column 5, lines 13-44 and 62-66; and Figures 1, 3, 10, 16, 18, and 19).

4. Claims 1, 3, 9, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Persson (US 2,719,900).

Persson discloses a process for making sheet metal articles by inert-gas shielded arc welding by arc welding torch T, in which the process includes positioning and heating a supply of metal to be uniformly deposited from metal (wire) electrode E prior to rolling of molten/plasticized weld metal zone 14 by pressure roller R, with the assembly further including an inert gas stream that shields the weld zone (column 1, lines 15-20; column 2, lines 10-13 and 39-54; column 3, lines 35-36; column 4, lines 21-24 and 47-50; column 8, lines 42-45; and Figure 1).

5. Claims 1, 3-5, 9, 10, 13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Steigerwald (US 3,417,223).

Steigerwald discloses a welding process using radiant energy via an electron beam 9 (to be carried in vacuum) or a laser beam, in which metal material is supplied in the form of a wire or tape 3 (also provided in the form of a powder 38) and heated with beam 4, resulting in a deposit (layer) of metal material of constant thickness, followed by subsequent rolling and cooling of the melted surface 5 of the deposit by roller 8 (column 1, lines 12-38; column 4, lines 62-73; column 5, lines 47-75; column 6, lines 1-60; and Figures 1 and 2).

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6. Claims 1, 3, 9, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 56-151171.

JP 56-151171 discloses a method for finishing of a build-up welded article, in which a rotatable roller 7 is suspended above a support surface 1, while a filler (wire) metal 6 is made into a molten state by torch 4 prior to the rolling process on the (partially molten/plasticized) deposited material 2 by roller 7 to form a nearly uniform deposited layer (abstract; and Figure 2).

7. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 63-274779.

JP 63-274779 discloses a method of production of a wear resistant roll, in which a high energy (laser or electron) beam 5 from a beam generating device 4 is directed at a wear resistant metallic strip 2 to melt its surface prior to reaching a supported roller 6 that homogeneously levels the surface layer part into a layer having a substantially constant thickness (abstract; and Figure).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 6, 8, 11, 12, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald (US 3,417,223) in view of Lewis et al. (US 5,837,960).

Steigerwald discloses the elements in the processes of claims 1 and 13 above, including using a high energy beam to create a molten state on the metal surface.

Steigerwald does not specifically disclose the use of molten aluminum as the molten metal source, as well as the use of a computer to control the positioning of the source of deposited material and to make a computer representation of the item.

However, Lewis et al. disclose a laser production of articles (including aluminum articles) from powders, in which a computer is used to control the energy of a laser beam, to form a pool of molten metal, and to subsequently deposit molten metal (from a metal powder) along a path of a deposition zone, such that computer-aided design is used to control at least the horizontal movement of the deposition zone along the path by one or more positioners along an XYZ table, for the purpose of forming articles of desired shapes and dimensions (abstract; column 3, lines 25-36 and 65-67; column 4,

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lines 22-67; column 5, lines 1-6 and 52-67; column 6, lines 1-59; column 10, lines 43-60; column 14, lines 20-23; and Figures 1-4).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the process disclosed by Steigerwald, by using the computer control and design to control the movement of the deposition zone, in order to form articles of desired shapes and dimensions (Lewis et al.; abstract; and column 3, lines 25-36 and 65-67).

11. Claims 6, 8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-274779 in view of Lewis et al. (US 5,837,960).

JP 63-274779 discloses the elements in the process of claim 1 above, including using a high energy beam to create a molten state on the metal surface. JP 63-274779 does not specifically disclose the use of molten aluminum as the molten metal source, as well as the use of a computer to control the positioning of the source of deposited material and to make a computer representation of the item.

However, Lewis et al. disclose a laser production of articles (including aluminum articles) from powders, in which a computer is used to control the energy of a laser beam, to form a pool of molten metal, and to subsequently deposit molten metal (from a metal powder) along a path of a deposition zone, such that computer-aided design is used to control at least the horizontal movement of the deposition zone along the path by one or more positioners along an XYZ table, for the purpose of forming articles of desired shapes and dimensions (abstract; column 3, lines 25-36 and 65-67; column 4,

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lines 22-67; column 5, lines 1-6 and 52-67; column 6, lines 1-59; column 10, lines 43-60; column 14, lines 20-23; and Figures 1-4).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the process disclosed by JP 63-274779, by using the computer control and design to control the movement of the deposition zone, in order to form articles of desired shapes and dimensions (Lewis et al.; abstract; and column 3, lines 25-36 and 65-67).

12. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald (US 3,417,223) in view of JP 11-245063.

Steigerwald discloses the elements in the processes of claims 1 and 13 above, including using a high energy beam to create a molten state on the metal surface. Steigerwald does not specifically disclose that titanium would be used as the metallic substrate to be melted on its surface, in addition to an inert atmosphere in a laser environment.

However, JP 11-245063 discloses a titanium clad steel that is able to be melted on its surface and pressed by pressing roller 11 by a laser welding torch 13 having an inert gas shield box 14, such that a titanium clad steel plate without corrosion and crack in a weld zone is made, while the inert atmosphere reduces oxide inclusions in the metal surface (abstract; and Figures 1-5).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the process disclosed by Steigerwald, by

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using laser welding of titanium and causing partial melting on the titanium clad steel plate surface, as well as an inert atmosphere in a laser environment, in order to produce a titanium clad steel plate without corrosion and crack in the weld zone, while the inert atmosphere reduces oxide inclusions in the metal surface (JP 11-245063; abstract).

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-274779 in view of JP 11-245063.

JP 63-274779 discloses the elements in the process of claim 1 above, including using a high energy beam to create a molten state on the metal surface. JP 63-274779 does not specifically disclose that titanium would be used as the metallic substrate to be melted on its surface.

However, JP 11-245063 discloses a titanium clad steel that is able to be melted on its surface and pressed by pressing roller 11 by a laser welding torch 13 having an inert gas shield box 14, such that a titanium clad steel plate without corrosion and crack in a weld zone is made (abstract; and Figures 1-5).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the process disclosed by JP 63-274779, by using laser welding of titanium and causing partial melting on the titanium clad steel plate surface, in order to produce a titanium clad steel plate without corrosion and crack in the weld zone (JP 11-245063; abstract).

Conclusion


14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Utsunomiya et al. and Meiners et al. references are also cited to show related art.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK
kpk
May 8, 2003


TOM DUNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700